

# Notes on the Bottom-fishes Obtained at Offshores of Niigata and Yamagata Prefectures, with Descriptions of Five New Species

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Bottom fishes living at the offshores of the coast of Japan Sea region are little known, due to the facts of continuous stormy weather preventing fishing procedures when activity of engined bottom trawlers is favoured at the Pacific sides and adjacent waters. Moreover, most of the fishes inhabit the deep of Japan Sea are not valued as food belonging to the families *Cottidae*, *Cyclopteridae*, *Liparididae* and *Zoarcidae*, etc. Consequently, extensive collection of deep sea fishes has not been made yet, systematic and ecological studies of these fishes remaining in somewhat dubious conditions.

Very fortunately, however, the writer had a chance to visit the Fisheries Experiment Station of Yamagata Prefecture at Kamo as well as Japan Sea Regional Fisheries Laboratory in Niigata quite recently and was able to study one part of the collections of rare bottom fishes contained in the museum of these institutions. In the following is given the record of the specimens examined, of which five seem to be new to science.

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## Family *Scorpaenidae*

### Genus *Inimicus* JORDAN & STARKS

1. *Inimicus japonicus* (CUVIER & VALENCIENNES)  
Oni-okoze.

Distrib.—South to central part of Japan proper ; off Niigata and Kamo.

## Family *Cottidae*

### Genus *Gymnocanthus* SWAINSON

2. *Gymnocanthus herzensteini* JORDAN & STARKS  
Tsumaguro-kajika.

Distrib.—Aniwa Bay to southern part of Japan Sea including Hakodate, Genzan ; off Kamo.

### Genus *Icelus* KRÖYER

3. *Icelus spiniger* GILBERT

Kōri-kajika.

Distrib. -Unalaska; Bristol Bay; Aniwa Bay to northern part of Japan Sea; off Niigata and Kamo.

Genus *Dasycottus* BEAN4. *Dasycottus setiger* BEAN

Ganko.

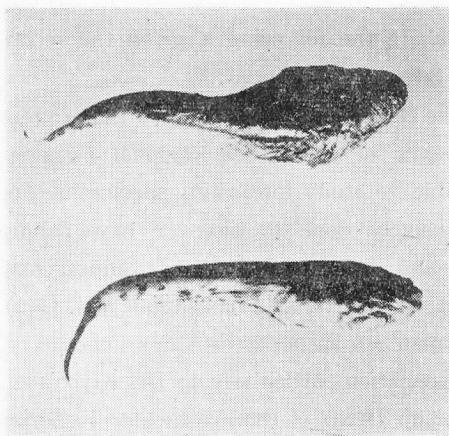
Distrib. -Alaska; Hokkaido to Toyama Bay; off Niigata and Kamo.

Genus *Zesticelus* JORDAN & EVERMAN5. *Zesticelus japonicus* (new species)

Nihon-sokokajika (new name).

Head 2.50 in length; depth 5.63; snout 4.05 in head; eye 5; interorbital space 2; depth of caudal peduncle 3.00; D. VI-11; A. 10; P. 18; V. 3.

Head and anterior part of body depressed, tapering posteriorly, ending in narrow and slender caudal peduncle; head conical; snout short, tip obtusely pointed; eye large, superior; interorbital space narrow, shallow longitudinal groove runs from the tip of snout running

Fig. 1. *Zesticelus japonicus* Oshima

a. Lateral view.

b. Dorasal view.

through the interorbital space; nostril nearer to tip of snout than eye, with no nasal spine; mouth slightly oblique, lower jaw more or less produced than the upper, its angle reaching to a vertical through anterior border of orbit; vomer and palatines toothed; head entirely naked, occiput provided with indistinct osseous ridges; preopercular spines 4, the uppermost one enormously large and curved, the rest minute and subequal in size, the lowermost directed forwards; opercular spine rather weak, triangular, situated at the upper angle; muciferous system much developed, opening by wide pores along the lower jaw, the infraorbital ring, and the lateral line; on the occiput just behind the eyes

openings of mucous cavity arranged circularly; gill-membrane connected, but free from isthmus, forming a broad fold across it.

Dorsal fins separated, fins low, rays flexible; both fins close together; pectoral large, without free rays below, reaching to the origin of anal beyond the vent; ventrals slender, subjugular; anal low, rays weak; caudal elongate, fan-shaped, truncated behind.

Body not scaly, with no bony plates nor prickles; lateral line starts from the upper corner of gill-cleft and runs along the middle of sides reaching to the middle of caudal base.

Colour in formalin brownish gray above, lower part whitish; top of head uniformly grayish while the sides of body maculated with brownish gray; anterior one-third of spinous dorsal fuscous; soft dorsal, pectoral, and caudal pale brown, the latter with several brownish cross bands; ventral and anal whitish.

Described from a specimen of 60 mm. long (No. 1335), collected at the offshore of Niigata.

Remarks; - The present species differs from the type of Genus *Zesticelus* described by GÜNTHER in the year 1887 under the name *Cottus bathybius* obtained in the deep of Pacific of Yede, especially in the size of uppermost preopercular spine and in number of fin rays of dorsal and anal. In addition, having no nasal spine it also differs from the known species of closely allied genus *Porocottus*.

#### Family *Agonidae*

##### Genus *Pallasina* CRAMER

6. *Paliasina eryngia* JORDAN & RICHARDSON  
Higenaga-Yagiuwo.

Distrib. - Aomori, Echigo; off Kamo.

##### Genus *Sarritor* CRAMER

7. *Sarritor frenatus* (GILBERT)  
Yasetengu-tokubire.

Distrib. - Coast of Alaska; Provostmaya, Kamchatka; Tobishima, Yamagata.

8. *Sarritor leptorhynchus* (GILBERT)  
Tengu-tokubire.

Distrib. - Coast of Alaska; recorded off Cape Pestschnuzoff, Korea; off Niigata.

##### Genus *Podothecus* GILL

9. *Podothecus sachi* (JORDAN & SNYDER)  
Tokubire.

Distrib. - Hokkaido to northern part of Japan Sea; east coast of Korea; off Kamo.

##### Genus *Occa* JORDAN & EVERMANN

10. *Occa dodecaedron* (TILESIIUS)  
Kamuto-sachiuwo.

Distrib. - Alaska; Kamchatka; Kuril Is.; off Niigata.

#### Family *Cyclopteridae*

##### Genus *Cyclopterichthys* STEINDACHNER

11. *Cyclopterichthys ventricosus* (PALLAS)  
Hotei-uwo.

Distrib. - Kamchatka; Bering Sea, southward to northern Japan Sea through Hokkaido; off Kamo.

##### Genus *Cyclolumpus* TANAKA

12. *Cyclolumpus asperrimus* TANAKA  
Konpeto.

Distrib. - Off Niigata.

13. *Cyclolumpus birulai* (POPOV)  
Hime-konpeto (new name).

Distrib. - Okhotsk Sea; off Otaru; Musashi Bank, northern Japan Sea; Wakkanai; off Kamo, Yamagata.

Genus *Lethotremus* GILBERT14. *Lethotremus fuscopunctatus* new species  
Gomadara-dango (new name).

Head 2.34 in length; depth 1.75; depth of caudal peduncle 4.35 in head; snout 2.67; eye 3.00; interorbital space 1.84; D. V-9; A. 10; P. 25.

Body almost globular, truncated in front; width about equal to depth; the tail short, strongly compressed posteriorly; skin smooth; head large, quadrate anteriorly, slightly vaulted above; snout short; mouth terminal, horizontal; jaws subequal, angle not reaching a vertical through

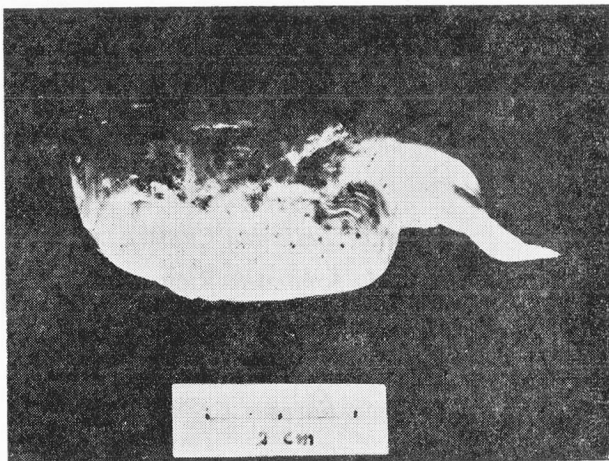


Fig. 2. *Lethotremus fuscopunctatus* OSHIMA Lateral view

nostril; eye large, lateral and superior, situated much nearer to tip of snout than to gill-opening; preorbital area nearly equal to diameter of pupil; interorbital space extraordinary broad; jaws with broad bands of close-set blunt teeth; barbels none; nostril in a short tube, situated in front of eye above and nearer to lip than to orbit; gill-opening vertical, slit-like, situated about midway between upper edge of the base of pectoral and insertion of spinous dorsal; gill membranes broadly united to isthmus.

Dorsal fins 2, the first inserted behind the gill-cleft above, widely separated from the second, spines short and entirely hidden beneath skin; insertion of second dorsal in advance of that of anal, when depressed scarcely reaching to the base of caudal; pectoral large, rounded posteriorly, its edge continuous; ventral disc round, with a wide free margin, its diameter 1.72 in head; caudal fan-shaped, truncated behind, fin membrane thin; no lateral line.

Colour in formalin grayish above with brown speckles; ventral side whitish; all the fins pale with no markings.

Total length 70 mm.

Described from a specimen No. 1345, obtained from the offshore of Niigata.

Remarks: - *Lethotremus awae* JORDAN & SNYDER, hitherto known Japanese species belonging to the present genus greatly differs from the present form in colouration and the shape of head in addition to number of fin rays. Moreover, barbels in head and lower jaw in *L. awae* are not visible and spinous dorsal inserted far behind than the former.

Besides the type another small specimen of 56 mm. long has been examined.

## Family Liparididae

Genus *Careproctus* KRØYER15. *Careproctus pellucidus* GILBERT & BURKE  
Aobikunin.



Distrib. - Matsushima Bay; off Kamo, Yamagata.

16. *Careproctus sinensis* GILBERT & BURKE  
Sekichiku - bikunin.

Distrib. - off Sado.

Genus *Crystallias* JORDAN & SNYDER

17. *Crystallias matsushimae* JORDAN & SNYDER  
Abachan.

Distrib. - Matsushima Bay; Saghalien (off Cape Patience) to offshore of Sado and Echigo through northwest end of Hokkaido; Corea.

18. *Crystallias kamoae* new species  
Kamo-abachan (new name).

Head 3.76 in length; depth 3.56; snout 2.34 in head; eye 4.40; interorbital space 5.85; D. 60; A. 50; P. 25; C. 10.

Body willow-leaf shaped, elongate, strongly compressed, covered with transparent skin,

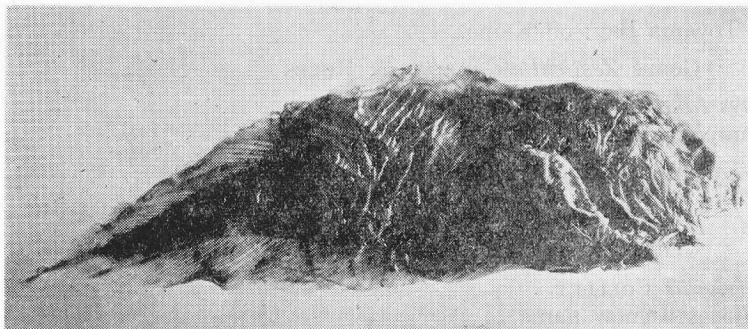


Fig. 3. *Crystallias kamoae* OSHIMA

tapering posteriorly; caudal end being acute, deepest at the occipital region; head rather short, top markedly convex, dorsal profile nearly straight; interorbital space very slightly convex; mouth inferior, oblique, lower jaw much intruded; maxillary reaches to a vertical through the anterior border of orbit; teeth on both jaws minute, low and trifold; snout short, conical, tip pointed; nostril single, in a long tube, situated nearer to orbit than to tip of snout; both jaws provided with numerous fleshy barbels; eye moderate, directed laterally; gill-openings small, entirely above the base of pectoral; no lateral line.

All the fin rays enveloped in a continuous thin transparent covering; anterior rays of vertical fins scarcely visible; dorsal originates at the end of nape just above gill-opening, the rays becoming higher posteriorly and lessening to the end of caudal; anal inserted somewhat behind the dorsal, similar in shape to the latter; vertical fins continuous to the middle of caudal which is slender, narrow and pointed posteriorly; pectoral large, divided into two parts by a shallow notch, tip of the fin rays of posterior part extruded from the fin membrane, slender and fringe-like; ventral disc large, entirely covered by the posterior part of pectoral, with free membraneous edge.

Colour in formalin uniformly pinkish white with no markings.

Total length 155 mm.

Remarks: - The present species distinctly differs from the hitherto known species of Genus *Crystallias*, viz. *C. matsushimae* JORDAN & SNYDER, having no bars nor markings on

body and pectoral with fringed posterior part, as well as narrow wedge-like body of nearly straight profile.

A single specimen obtained at the offshore of Kamo; exact locality unknown.

Genus *Liparis* ARTEDI

19. *Liparis tanakae* (GILBERT & BURKE)  
Kusauwo.

Distrib. – Japan Sea from Aomori to Noto and Fusan, Korea; Sagami Bay; off Kamo.

Family *Blennidae*

Genus *Stichaeus* REINHARDT

20. *Stichaeus nozawae* JORDAN & SNYDER  
Taue-gaji.

Distrib. – Otaru; Hakodate; off Niigata.

21. *Stichaeus elongatus* SAKAMOTO  
Nuime-modoki.

Distrib. – Toyama Bay; off Kamo.

Genus *Zestichthys* JORDAN & HUBBS

22. *Zestichthys tanakae* JORDAN & HUBBS  
Kanten-geenge.

Distrib. – Kushiro, Hokkaido; off Choshi; off Kamo.

Family *Zoarcidae*

Genus *Lycodes* REINHARDT

23. *Lycodes frigidus* COLLET  
Shimofuri-gaji (new name).

Distrib. – northern Atlantic coast of the United States; off Niigata.

24. *Lycodes japonicus* MATSUBARA  
Yamato-gaji (new name).

Distrib. – Toyama Bay; off Niigata.

25. *Lycodes perspicillum* KRØYER  
Mayu-gaji.

Distrib. – Greenland; Chipesani, Saghalien; off Kamo.

26. *Lycodes macrolepis* TARANEZ & ANDRIASHEV  
Yokoshima-gaji.

Distrib. – Okhotsk Sea; off Kamo.

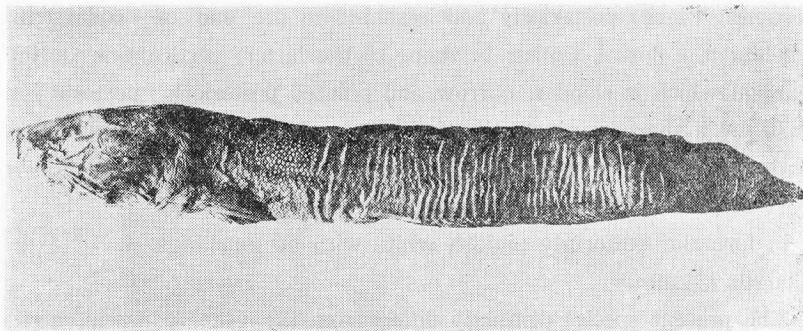


Fig. 4. *Petroschmidtia toyamensis* KATAYAMA

Genus *Petroschmidtia* TARANEZ & ANDRIASHEV

27. *Petroschmidtia toyamensis* KATAYAMA  
Ago-genge.

Distrib. - Toyama Bay; off Tsuiyama, Hyogo Prefecture; off Kamo.

Genus *Furcimanus* JORDAN & EVERMANN

28. *Furcimanus nakamurae* TANAKA  
Kuro-genge.

Distrib. - from Hokkaido to northern part of Japan Sea; off Kamo.

Genus *Lycogramma* GILBERT

29. *Lycogramma japonica* new species  
Yamato-genge (new name).

Head 6.40 in total length; depth 10.02; snout 3.82 in head; eye 3.54; interorbital space 7.63; D. 92; A. 75; P. 16.

Body elongate, gradually compressed posteriorly, tapering to a point, entirely covered with thin soft membrane; head elongate, skull cavernous; top of occiput broadly depressed; mouth inferior; lower jaw intruded; maxillary reaches to a vertical through anterior border of orbit; villiform teeth banded in both jaws as well as palatines and vomer; outer margin of upper jaw provided with a series of minute canine teeth; nostrils each in a short tube nearer to tip of snout than the eye; tongue short and thick, rounded anteriorly, connected with the floor of lower jaw by means of thin membrane; snout rather short, obtusely rounded anteriorly, provided with irregular concavities corresponding to the caverns of skull; interorbital space deeply depressed, bordered by elevated high ciliary ridges; eye large, superior and lateral, nearer to tip of snout than to eye; gill-openings large, lateral; gill membranes connected to the isthmus; branchiostegals four.

Head except snout minutely scaled; body densely covered with minute imbricated cycloid scales; lateral line none.

Dorsal, anal and caudal continuous, the latter terminating in a sharp point; origin of dorsal a little behind the base of pectoral, middle rays highest, lower anteriorly and posteriorly; origin of anal just behind the vent; its form similar to dorsal, but lower; pectoral rather narrow, pointed, tip scarcely reaches midway to vent; ventral absent:

Colour in formalin plain brownish; fins somewhat paler.

Total length 295 mm.

Remarks: - The present species closely allied to *Lycogrammus zesta* (JORDAN & FOWLER), differing from it in having lesser number of dorsal and anal rays and densely scaled postorbital region of head.

Genus *Gymnelis* REINHARDT

30. *Gymnelis viridis* (FABRICIUS)  
Hadaka-genge.

Distrib. - Greenland; Okhotsk Sea; off Niigata.

Genus *Lycodonus* GOODE & BEAN

31. *Lycodonus dorsoscutatus* new species  
Hosonaga-genge (new name).

Head 9.40 in total length; depth 13.00; snout 6 in head; eye 3.26; interorbital space 4.50; D. ca. 77; A. ca. 48; P. 18; V. I, 5.

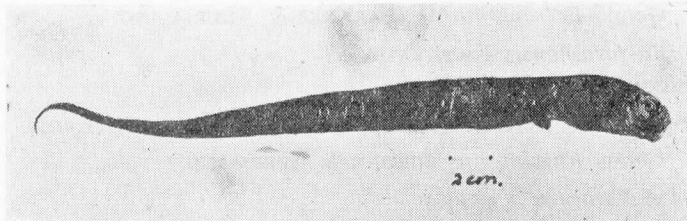


Fig. 5. *Lycodon dorsascutatus* OSHIMA

Body elongate, strongly compressed, eel-shaped; tapering posteriorly; head rather short, tip more or less convex, dorsal profile slightly arched; mouth oblique, angle reaching beyond the anterior border of orbit below; supramaxillary enormously large, covering the interspace between orbit and upper lip entirely; lower jaw very slightly protruded; bottom of lower jaw remarkably swollen, forming a bag-like projection; teeth on both jaws in a single series, minute and conical; vomer and palatines provided with conical teeth; nostrils two, separated in front of eye above; eye lateral, exceedingly large, small mucous cavities arranged in an arc surround the eye below and behind; horny ciliary ridge low but entire; top of snout with irregularly arranged horny projections; interorbital space rather broad, somewhat depressed; preopercles and opercles flat and smooth, with no tubercles nor spines; gill-openings lateral; gill-membranes not united to the isthmus; branchiostegals four.

Vertical fins not continuous to caudal; origin of dorsal at the upper corner of gill-cleft above, with no spiny rays posteriorly, anterior rays highest, gradually lowering posteriorly, each ray supported laterally by a pair of elongate ectodermal scute; anal inserted just behind the vent, similar in form with the dorsal having no lateral scutes along the base; pectoral rather broad, fan-shaped, outer margin rounded, entire, reaching beyond midway to vent; ventrals jugular, slender, but not rudimental; caudal elongate, ending in a point.

Head entirely naked; body densely covered with minute scales embedded in skin; lateral line obsolete.

Colour in formalin uniformly dark brown; top of head and fins somewhat paler.

Total length 346 mm.

Described from a specimen obtained at the offshore of Kamo, Yamagata Prefecture.

Remarks:—Hitherto known species included in the present genus is *Lycodomus mirabilis* GOODE & BEAN from North Atlantic at the offshore of the United States. The present species widely differs from the above-mentioned species having no lateral supporting scutes of anal rays and lower jaw of peculiar shape, as well as lesser number of anal spines.